CONFERENCE ON DISARMAMENT

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Seminar Conference on Technical Issues
for a Fissile Material Cut-off Treaty
11 and 12 May 1998, Geneva
Chairman's Summary

1. INTRODUCTION

The "Seminar Conference on Technical Issues concerning a Fissile Material Cut-off Treaty" was held at the Palais des Nations in Geneva, from 11 to 12 May 1998 under the sponsorship of the Japanese Ministry of Foreign Affairs. Governmental experts in charge of nuclear issues from Australia, Belgium, Canada, Chile, Egypt, France, Germany, India, Israel, Japan, Mexico, South Africa, Switzerland, the United Kingdom and the United States of America took part in the Seminar in their private capacities. Also, experts of the International Atomic Energy Agency (IAEA) and the United Nations Institute for Disarmament Research (UNIDIR) attended the seminar, as did a number of leading nongovernmental experts. Many delegates to the Conference on Disarmament also took part in discussions. Generous logistic assistance was provided by the Secretariat of the Conference on Disarmament for the seminar. My gratitude is extended to all those individuals and organizations.

It is difficult to summarize the content of all the discussions held over the past one and a half days while still doing justice to all the points made by the participants. Therefore, the following is an account of only the salient points and the main thrusts of the discussions that took place, as seen by myself as the chairman of the seminar. While I will do my utmost to be as objective and fair as possible, it is with the awareness that my account may not be to the complete satisfaction of the participants, and it is with their abundant indulgence that I make the following summary of the conference.

One and a half days of informal but intensive meetings served as a valuable opportunity for all the participants to have a frank and in-depth exchange of views on the important question of how to address various technical issues concerning a FMCT.

Of course, the Seminar was primarily intended for deepening understanding

among those with diverse views, and not for the adoption of any agreed documents or statements. I am pleased to state that all the participants felt the last one and a half days of discussions were useful and rewarding in terms of deepening their understanding of important technical issues and in gauging the practicability of various ideas concerning a FMCT. It is hoped that the discussions in the Seminar will be conducive to further promoting our groundwork for the commencement of FMCT negotiations.

2. TECHNICAL ISSUES CONCERNING THE COVERAGE OF FMCT

The seminar opened with an excellent presentation concerning various significance of a FMCT with regard to arms control and disarmament.

The issue of possible coverage of a FMCT was discussed in the first session with particular attention to the terms of the Shannon Report.

Participants were of the opinion that a FMCT should prohibit the production of fissile material for use in nuclear weapons or other nuclear explosive devices, and therefore that all plutonium, highly enriched uranium (HEU) must be placed under strict verification mechanism of this treaty. It was also pointed out that Uranium-233 should be treated similarly.

Participants also discussed how to deal with the issue of HEU used for naval propulsion purposes in the context of a FMCT. Some stressed that such HEU should be placed under appropriate material control and accounting. It was recognized that technical aspects of this issue merits further consideration.

The issue of fissile materials not directly usable for nuclear weapons such as low enriched uranium (LEU) and spent fuels were also discussed. While many emphasized the need to address these materials for greater assurance against diversion, it was cautioned that careful consideration is necessary in terms of financial implication.

It was the view of many participants that tritium should be out of the coverage of a FMCT.

Some participants raised the issue of existing stockpiles. In this connection, several variations of a potential scope of a FMCT was presented. Some others were of the

opinion that the scope of the treaty should be limited to the future production. A phased approach for greater transparency and irreversibility was also considered.

3. VERIFICATION MECHANISM UNDER FMCT

The issue of verification was considered in a part of the first session and in the entire second session.

A participant from nuclear weapon State stated that they are in the process of considering relevant issues taking into consideration both technical aspects and usefulness of specific measures. It was suggested by another participant that nuclear weapon States could share with non nuclear weapon States information on their relevant experience and technical problems they face.

In principle, participants shared the opinion that the purpose of the verification regime under a FMCT should be detecting both the diversion of fissile material and any undeclared enrichment or reprocessing. The issue of importation of relevant materials were also raised.

Concerning possible structure of a verification mechanism under the treaty, many participants were of the opinion that it would include routine-type inspections that would correspond roughly to the current comprehensive safeguards measures of the IAEA. It was also a shared view that some sort of challenge inspections are worth consideration. It was recognized during the discussions that if the level of assurance ensured through routine-type inspections was limited, the challenge inspections would play an important role. In addition, it was pointed out that some complementary measures along the lines of the Additional Protocol should be considered.

Also discussed was whether a legal instrument for the verification mechanism would take the form of verification agreements / arrangements like the case in the NPT.

Participants considered several verification alternatives that could be adopted under the treaty. Sets of facilities to be covered and corresponding verification measures, as well as each alternative's trade-off between the expected level of assurances and necessary costs were presented.

It was a shared view among the participants that the applicability of existing IAEA safeguards mechanism to a FMCT should be considered carefully. Difference may arise between these two because of objectives and obligations of a FMCT that is qualitatively different from those of the NPT, and also because of technical development in the field of verification measures. Therefore under a FMCT, important technical parameters such as "significant quantities" and "timeliness goal" may be different from those of existing IAEA safeguards system.

Many participants stressed the need of developing national systems such as a state's system of accounting for and control of nuclear material (SSAC) and / or a physical protection system in nuclear weapon State as well as non parties to the NPT. Adequate information to be declared by States should also be considered.

Participants pointed out the need to consider problems arising from facilities in nuclear weapon States that are not designed to be placed under safeguards. Problems also arise from those states where military and civilian fuel cycle are not entirely separated. These problems will pose technical challenges, and in this context, it was suggested that prevention of leakage of information with proliferation risk would be an important issue for consideration.

The issue of termination of verification under a FMCT need to be further addressed, if the coverage of verification mechanism under the Treaty is similar to comprehensive safeguards system.

Many participants regarded the IAEA as the most suitable body to carry out verification tasks under a FMCT. Caution was expressed in this context that, as a FMCT would certainly entail a significant expansion of verification-related activities, due consideration is necessary with a view to acquiring additional infrastructure including competent human resources for inspection. It was made clear that the Agency remains ready to help in the process of further discussions and negotiations in whatever way considered appropriate and relevant by States.

It was the view shared by all participants that each of these verification issues merit further in-depth discussions.

4. ENSURING TRANSPARENCY AND IRREVERSIBILITY

In the third and last session, issues of ensuring transparency and irreversibility was addressed. While issues there may be out of the scope of a FMCT, ensuring transparency and irreversibility were viewed by many participants as an extremely important element for consideration.

It was pointed out by a presenter that transparency is an essential component of irreversibility, and that, to ensure irreversibility, it would be desirable to take several steps.

It was also pointed out that stockpiles may contain sensitive information in relation to nuclear non-proliferation. It was suggested that useful experience could be learned from EURATOM as well as from South Africa in this respect. It was also noted that, as a first step, military direct-use material withdrawn from dismantled weapons and such material considered excess and designated for transfer into the civilian use, should be declared and properly managed in parallel with a FMCT. Caution was expressed, however, that such efforts would be more successful were they pursued independently with a FMCT, rather than addressed by the treaty itself. A participant stressed that a leap from secrecy to transparency is a political decision.

Many participants expressed their interest in an Australian proposal concerning a phased approach with a FMCT being the core and the first step of it.

SEMINAR CONFERENCE ON TECHNICAL ISSUES FOR A FISSILE MATERIAL CUT-OFF TREATY

1.DATE

Monday, 11 May and Tuesday, 12 May

2.VENUE

Room H3, Palais des Nations, Geneva, Switzerland

3.PURPOSE

Through seminar-style deliberations focusing on technical aspects of a fissile material cut-off treaty, this conference aims at providing a basis for future negotiations of the treaty. In order to focus on technical aspects of the treaty, this conference does not discuss political issues related to the commencement of the treaty.

4.CHAIRMAN

Mr.Hiroyoshi KURIHARA
Senior Executive Director, Nuclear Material Control Center,
Tokyo, Japan

5.PARTICIPANTS

(1) Governmental experts from countries concerned,one expert from IAEA and several non-governmental experts
(2) Members of CD delegations

Schedule

11 May(Monday)

10:00 Opening

- introductory remarks by Ambassador Akira HAYASHI
- keynote remarks by Professor George BUNN

10:30 coffee break

10:50-13:00 SESSION 1 : Fissile materials for nuclear weapons and other nuclear explosive devices

- What does "Shannon Mandate" mean in technical terms? (What is to be prohibited and what is to be placed under safeguard?)
  - -plutonium
  - -HEU
  - -LEU
  - -spent fuels
  - -naval fuels
  - -other issues

- Presentation by
  - -- Mr. Warren STERN, Senior Technical Adviser, Nuclear Safeguards and Technology Division,ACDA, U.S.A
  - -- Dr.Annette SCHAPER, Senior Research Associate, Peace Research Institute, Frankfurt
- General discussion among experts
- Questions and answers with CD delegates

14:30 SESSION 2: Verification

- -objective
- -structure
- -facilities to be covered
- -facilities that are not designed to be subject to safeguards from the beginning
- -preventing leakage of information with proliferation risk
- -other specific issues

- Presentation by
  - -- Mr.Demetrius PERRICOS, Director, Division of Operations(A), Department of Safeguards, IAEA
  - -- Mr.Kinji KOYAMA, Senior Fellow, Center for the Promotion and Non-proliferation, Japan
- General discussion among experts
- Questions and answers with CD delegates

16:15 Coffee break

16:30-18:00 SESSION 2 continued

12 MAY(Tuesday)

10:30 SESSION 3: Ensuring transparency and irreversibility
-measures for enhancing transparency
-measures for ensuring irreversibility
-approach to move ahead

- Presentation by
  - -- Ms.Rebecca JOHNSON, Acronym Institute
- General discussion among experts
- Questions and answers with CD delegates

12:00 coffee break

12:30 Summary by the Chairman

Closing

LIST OF PARTICIPANTS

1. **Chairman**

Mr. Hiroyoshi KURIHARA, Senior Executive Director,
Nuclear Material Control Center, Japan

2. **Keynote Speaker and Presenters**

Prof. George BUNN, Professor, Center for International Security and Arms Control, Stanford University

Ms. Rebecca JOHONSON, Acronym Institute

Mr. Kinji KOYAMA, Senior Fellow, Center for the Promotion of Disarmament and Non-Proliferation, Japan

Mr. Demetrius PERRICOS, Director, Division of Operation(A), Department of Safeguards, IAEA

Dr. Annette SCHAPER, Senior Research Assosiate, Peace Research Institute in Frankfurt, Germany

Mr. Warren STERN, Senior Technical Adviser,
Nuclear Safeguards and Technology Division, ACDA, U. S. A.

3. **Other Participants (Governmental experts and NGO representatives)**

Mr. Jaime ACUNA, Minister Counsellor,
Permanent Mission of Chili to the CD

Mr. Graham ANDREW, Department of Trade and Industry, U. K.

Dr. K. BALU, Head of Nuclear Waste Management Group, Department of Atomic Energy, India

Mr. John CARLSON, Director, Safeguard Office, Australia

Mr. Emmanuel COCHER, Disarmament Division, Ministry of Foreign Affairs, France

Mr. Amnon EFRAT, Minister Counsellor,
Permanent Mission of Israel to the CD

Mr. Ibrahim Aly Saleh El-SHAHAWI, Chief of Nuclear Fuel Department, Nuclear Plant Authority, Ministry of Electricity and Energy, Egypt

Mr. Andreas FRIEDRICH, Chief of Section, Federal Department of Foreign Affairs, Switzerland

Mr. Mark GLAUSER, Second Secretary, Permanent Mission of Canada to the CD

Dr. Peter HOWARTH, Director, Nuclear Non-Proliferation Policy Section, Nuclear Policy Branch, Australia

Dr. Max KELLER, Chief of Section, Atomic, Biological and Chemical Laboratory, Spiez, Switzerland

Mr. Bruno LE MAIRE, Non-Proliferation Division, Ministry of Foreign Affairs, France

Dr. Patricia M. LEWIS, Director, United Nations Institute for Disarmament Research

Mr. Andre MERNIER, Ambassador, Permanent Mission of Belgium to the CD

Dr. Tariq RAUF, Director, International Organizations and Non-Proliferation Project at the Center for Non-Proliferation Studies, Monterey Institute of International Studies

Mr. Michel RICHARD, Deputy-Director, International Relations Direction, Atomic Energy Commission, France

Mr. Navtej SARNA, Counsellor, Embassy of India in Tehran

Mr. Beat WIELAND, Chief of Section, Federal Office of Energy, Switzerland

Dr. Nick von WIELLIGH, Senior Manager of Nuclear Non-Proliferation of the Atomic Energy Cooperation, South Africa